

REMARKS

Applicants have amended the specification to update the status of patent applications referenced herein. Applicants have added dependent claims 71 and 72.

Claims 1-5, 8-10, 12, 14-16, 19-20, 23-24, 27, 29-32, 35-40, 45-48, 51-53, 55-61, 65-68, and 70 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,389,922 to Seroussi et al. ("Seroussi"). Claims 39 and 57 were rejected under 35 U.S.C. 103(a) as unpatentable over Seroussi and U.S. Patent No. 4,558,302 to Welch ("Welch"). Claims 6, 17-18, 21, 25, 33, 49, and 62-64 were rejected under 35 U.S.C. 103(a) as unpatentable over Seroussi and U.S. Patent No. 5,150,430 to Chu ("Chu"). Claims 41-44 were rejected under 35 U.S.C. § 103(a) as unpatentable over Seroussi and U.S. Patent No. 5,608,396 to Cheng et al. ("Cheng").

The Examiner submits that all of the rejected claims are unpatentable over the Seroussi patent individually under § 102(b), or in combination with other cited patents under § 103. For the reasons discussed below, Applicants respectfully traverse these rejections and submit that Seroussi, either individually or in combination with the other cited patents, does not teach Applicants' claimed invention.

Although Seroussi discloses two compression algorithms running in parallel with an uncompressed transmission scheme, Seroussi does not teach at least one of the compression engines implementing a parallel data compression algorithm, as required by the claims of the present application. Furthermore, the Examiner has not cited to any such teachings in Seroussi. Each of Applicants' independent claims require that at least one of the compression engines implement a parallel data compression algorithm. Based on its teachings, Seroussi appears to only disclose compression engines that process data in a serial format.

In Applicants' specification, Applicants note that "[a]n example of a compression engine that implements a parallel lossless data compression . . . [is] described in U.S. Patent No. 6,208,273," incorporated in the specification by reference. *See* p. 17, line 29 – p. 18, line 4. U.S. Patent No. 6,208,273 describes parallel compression engines as follows:

The MemoryF/X Technology preferably includes novel parallel compression and decompression engines designed to process stream data at more than a single byte or symbol (character) at one time. These parallel compression and decompression engines modify a single stream dictionary based (or history table based) data compression method, such as that described by Lempel and Ziv, to provide a scalable, high bandwidth compression and decompression operation. The parallel compression method examines a plurality of symbols in parallel, thus providing greatly increased compression performance.

Col. 4, lines 46-56. Seroussi does not teach at least one of its compression engines processing data in parallel format as described above.

In addition, Seroussi can be distinguished from Applicants' claimed invention for yet another reason. In particular, in Applicants' claimed invention a plurality of compression engines compress the same data, but produce different versions of compressed data. One of the versions of compressed data is selected based on certain metrics. On the other hand in Seroussi, two compression engines operate in parallel along with an uncompressed transmission scheme. In one scenario, neither of the two compression engines succeeds in compressing the data, in which case an uncompressed copy of the original data is output. *See* Col. 17, lines 48-51. Thus, unlike Applicants' claimed invention wherein different versions of compressed data are output and the "best" version of compressed data is selected, in Seroussi one of the versions of data may consist of the original, uncompressed format, and this format may be selected as the "best" version. *See also* Fig. 20.

For at least these reasons, Applicants submit that their independent claims are allowable over Seroussi, either individually or in combination with other cited patents. Applicants further submit

that their dependent claims, including newly added claims 71 and 72, are allowable for at least these same reasons.

Claims 7, 11, 22, 26, 34, 50, and 69 were objected to without explanation. Applicants assume that the Examiner believes that these claims would be allowable if rewritten in independent form. In view of the remarks above, such objection is moot, and Applicants submit that these claims are allowable in their present form.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made.**"


Respectfully submitted,

A handwritten signature in black ink that reads "Michael Adams". The signature is written in a cursive, flowing style.

Michael P. Adams
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CERTIFICATION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence (along with any item referred to as being enclosed herewith) is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Box Fee Amendment, Commissioner for Patents, Washington, D.C. 20231, on March 26, 2003.



Signature

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Specification

Continuation Data

This application is a continuation-in-part (CIP) of U.S. patent application Serial No. 09/818,283 titled "SYSTEM AND METHOD FOR PERFORMING SCALABLE EMBEDDED PARALLEL DATA COMPRESSION" filed March 27, 2001, whose inventors were Manuel J. Alvarez II, Peter Geiger, and Thomas A. Dye;

which is a continuation-in-part of U.S. patent application Serial No. 09/421,968 titled "SYSTEM AND METHOD FOR PERFORMING SCALABLE EMBEDDED PARALLEL DATA COMPRESSION" filed October 20, 1999 whose inventors were Manuel J. Alvarez II, Peter Geiger, and Thomas A. Dye, now U.S. Patent No. 6,208,273;

which is a continuation-in-part of U.S. patent application Serial No. 09/239,659 titled "BANDWIDTH REDUCING MEMORY CONTROLLER INCLUDING SCALABLE EMBEDDED PARALLEL DATA COMPRESSION AND DECOMPRESSION ENGINES" filed January 29, 1999 whose inventors were Thomas A. Dye, Manuel J. Alvarez II, and Peter Geiger. Pursuant to a Response to Office Action of August 5, 2002, this application is currently pending a title change from the above to "SELECTIVE LOSSLESS, LOSSY, OR NO COMPRESSION OF DATA BASED ON ADDRESS RANGE, DATA TYPE, AND/OR REQUESTING AGENT."

Incorporation by Reference

U.S. Patent No. 6,208,273 titled "System and Method for Performing Scalable Embedded Parallel Data Compression", whose inventors are Thomas A. Dye, Manuel J. Alvarez II, and Peter Geiger, and which issued on March 27, 2001, is hereby incorporated by reference in its entirety as though fully and completely set forth herein.

U.S. Patent No. 6,145,069 titled "Parallel Decompression and Compression System and Method for Improving Storage Density and Access Speed for Non-volatile Memory and Embedded Memory Devices", whose inventor is Thomas A. Dye, and which issued on November 7, 2000, is hereby incorporated by reference in its entirety as though fully and completely set forth herein.

U.S. Patent No. 6,173,381 titled "Memory Controller Including Embedded Data Compression and Decompression Engines", whose inventor is Thomas A. Dye, and which issued on January 9, 2001, is hereby incorporated by reference in its entirety as though fully and completely set forth herein.

U.S. patent application Serial No. 09/239,659 titled "Bandwidth Reducing Memory Controller Including Scalable Embedded Parallel Data Compression and Decompression Engines" and filed January 29, 1999, whose inventors are Thomas A. Dye, Manuel J. Alvarez II, and Peter Geiger, is hereby incorporated by reference in its entirety as though fully and completely set forth herein. Pursuant to a Response to Office Action of August 5, 2002, this application is currently pending a title change from the above to "Selective Lossless, Lossy, or No Compression of Data Based on Address Range, Data Type, and/or Requesting Agent."

U.S. patent application Serial No. 09/491,343 titled "System and Method for Performing Scalable Embedded Parallel Data Decompression" and filed January 26, 2000, whose inventors are

Thomas A. Dye, Manuel J. Alvarez II, and Peter Geiger, is hereby incorporated by reference in its entirety as though fully and completely set forth herein.

U.S. patent application Serial no. 09/818,283 titled "System And Method For Performing Scalable Embedded Parallel Data Compression", and filed March 27, 2001, whose inventors are Manuel J. Alvarez II, Peter Geiger and Thomas A. Dye, is hereby incorporated by reference in its entirety as though fully and completely set forth herein.

U.S. patent application Serial no. 09/821,785 titled "System And Method For Performing Scalable Embedded Parallel Data Decompression", and filed March 28, 2001, whose inventors are Manuel J. Alvarez II, Peter Geiger and Thomas A. Dye, is hereby incorporated by reference in its entirety as though fully and completely set forth herein.

U.S. patent application Serial no. ~~___/___,___~~ 09/915,751 titled "System And Method For Managing Compression And Decompression Of System Memory In A Computer System", and filed July 26, 2001, whose inventors are Peter Geiger, Manuel J. Alvarez II, and Thomas A. Dye, is hereby incorporated by reference in its entirety as though fully and completely set forth herein.

U.S. patent application Serial no. 10/044,786 titled "Parallel Compression And Decompression System And Method Having Multiple Parallel Compression And Decompression Engines", and filed January 11, 2002, currently herewith, whose inventors are Peter D. Geiger; Manuel J. Alvarez II; Thomas A. Dye, is hereby incorporated by reference in its entirety as though fully and completely set forth herein.

In The Claims

71. (New) The data compression system of claim 19, wherein at least one of the plurality of compression engines performs parallel data compression using a plurality of parallel compression engines each operating in parallel on a different respective portion of said uncompressed data.

72. (New) The method of claim 58, wherein at least one of the plurality of compression engines performs parallel data compression using a plurality of parallel compression engines each operating in parallel on a different respective portion of said uncompressed data.

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